

Legislative Audit Division

State of Montana



Report to the Legislature

August 2005

Performance Audit Survey

Abandoned Mine Lands Program

Department of Environmental Quality

Remediation Division

Mine Waste Cleanup Bureau

This survey report:

- ▶ Provides information on the Abandoned Mine Lands Program
- ▶ Presents options if program funding ceases at the federal level

Direct comments/inquiries to:
Legislative Audit Division
Room 160, State Capitol
PO Box 201705
Helena MT 59620-1705

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Members of the performance audit staff hold degrees in disciplines appropriate to the audit process. Areas of expertise include business and public administration, mathematics, statistics, economics, political science, criminal justice, computer science, education, and biology.

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John W. Northey, Legal Counsel

Deputy Legislative Auditors:
Jim Pellegrini, Performance Audit
Tori Hunthausen, IS Audit & Operations
James Gillett, Financial-Compliance Audit

August 2005

The Legislative Audit Committee
of the Montana State Legislature:

This is our performance audit survey of the Abandoned Mine Lands Program within the Remediation Division of the Department of Environmental Quality. This survey contains information on program operations as well as considerations if federal funding should cease.

We wish to express our appreciation to the personnel of the Department of Environmental Quality's Remediation Division for their cooperation and assistance during our review.

Respectfully submitted,

(Signature on File)

Scott A. Seacat
Legislative Auditor

Legislative Audit Division

Performance Audit Survey

Abandoned Mine Lands Program

Department of Environmental Quality

**Remediation Division
Mine Waste Cleanup Bureau**

Members of the audit staff involved in this audit were Bridget Butler and Mike Wingard.

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Appointed and Administrative Officials

Department of Environmental Quality

Richard Opper, Director

Sandi Olsen, Administrator
Remediation Division

Vic Andersen, Chief
Mine Waste Cleanup Bureau

John Koerth, Supervisor,
Abandoned Mine Program

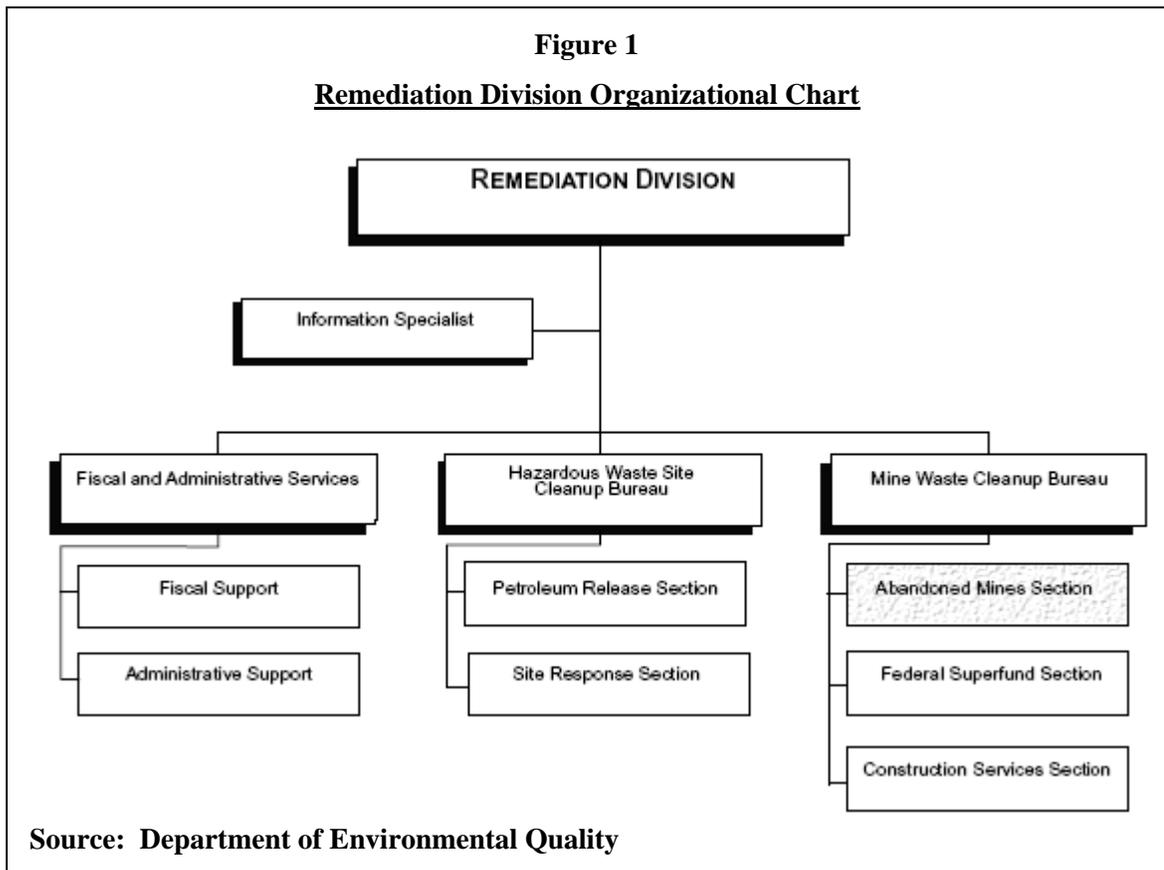
Chapter I - Introduction

Introduction

The Legislative Audit Committee requested performance audit work relating to the Abandoned Mine Lands (AML) Program within the Department of Environmental Quality (DEQ) to establish the extent of mine reclamation completed and the effectiveness of the state's efforts. Mine reclamation is the process by which lands disturbed as a result of mining activity are reclaimed. Reclamation activity includes the removal of buildings, equipment, machinery and other physical remnants of mining, toxic materials, and acid water. Reclamation also includes contouring, covering and revegetation of disturbed areas.

Title IV of the federal Surface Mine Control Reclamation Act (SMCRA), provides funding for the restoration of lands mined and abandoned or left inadequately restored before August 4, 1977. States and tribes with approved programs carry out these responsibilities. Twenty-three states maintain AML programs as well as three American Indian Nations, to include the Crow Indian Nation in Montana. Montana's AML program is contained within the Mine Waste Cleanup Bureau (MWCB) of DEQ's Remediation Division along with national superfund cleanup programs. The following organizational chart illustrates the program's position within the Remediation Division.

Chapter I - Introduction



Survey Scope and Methodologies

Our review focused on the AML program funded through SMCRA. We interviewed department personnel regarding the AML program, visited reclamation sites and obtained and reviewed the following documents:

- ▶ Federal and state regulations regarding AML programs
- ▶ The various reports created by contractors during the site reclamation process
- ▶ Bid proposals and reports developed by AML
- ▶ Performance and financial reports issued to the Federal Office of Surface Mining
- ▶ State accounting system records
- ▶ Legislative budget and fiscal reports

During audit planning, we discovered SMCRA, which establishes and provides funding for the AML program, is due to expire on

Chapter I - Introduction

September 30, 2005. Due to the program's potential change in status we conducted a performance audit survey to determine the impact on Montana's program and the need for any further performance audit work. The survey objectives were:

- ▶ To determine whether further performance audit work is warranted.
- ▶ Present data to the legislature to describe the AML program and the options available if funding ceases at the federal level.

Chapter II - Background

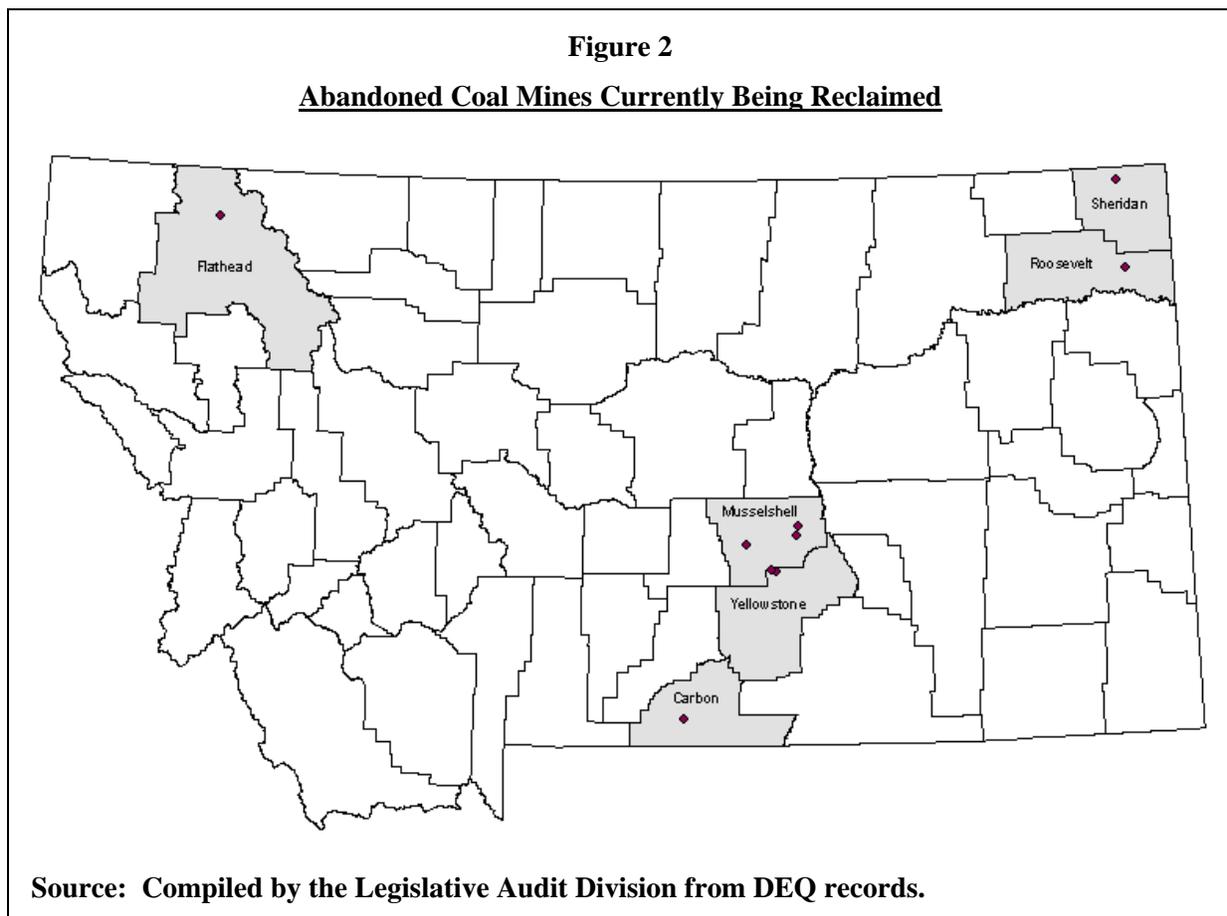
Background

Congress enacted the Surface Mine Control Reclamation Act (SMCRA) in 1977 to establish reclamation standards for all coal surface mining operations and surface effects of underground coal mining. It also established the Abandoned Mine Lands (AML) program to promote reclamation of coal sites mined and abandoned prior to enactment of SMCRA. Sites mined prior to SMCRA that are abandoned or left inadequately restored without a viable responsible party are defined as abandoned mine sites.

Program Certification

Although SMCRA's initial emphasis was coal mine reclamation, AML programs that have completed reclamation on all known abandoned coal sites are authorized by the Office of Surface Mining (OSM) within the Department of the Interior to use AML funding for alternative projects. Montana began its AML program in 1980. By 1990, Montana certified to the Secretary of Interior it had reclaimed all high priority abandoned coal mines. Upon approved certification, OSM authorized Montana to begin reclaiming non-coal abandoned mines, with the condition that any and all subsequently identified abandoned coal mines be reclaimed as they become evident and given precedence over hard rock mine reclamation. Currently, the AML program is working on nine such abandoned coal sites. The following map illustrates the counties in which these coal sites are located.

Chapter II - Background



Of the 23 states participating in the AML program, only four are certified: Montana, Texas, Wyoming, and Louisiana. Although these states are all certified, each program is authorized and funded to conduct alternate projects. For example, Wyoming does not reclaim many hard rock mines in comparison to Montana. However, Wyoming is authorized to use their funds for the construction of public facilities.

Montana's AML Program

Each state participating in the AML program is required to submit a state plan to OSM containing:

- ▶ Designation by the Governor of the state agency responsible for the AML program
- ▶ Legal opinion from the Attorney General that indicates the state has authority to operate an AML program

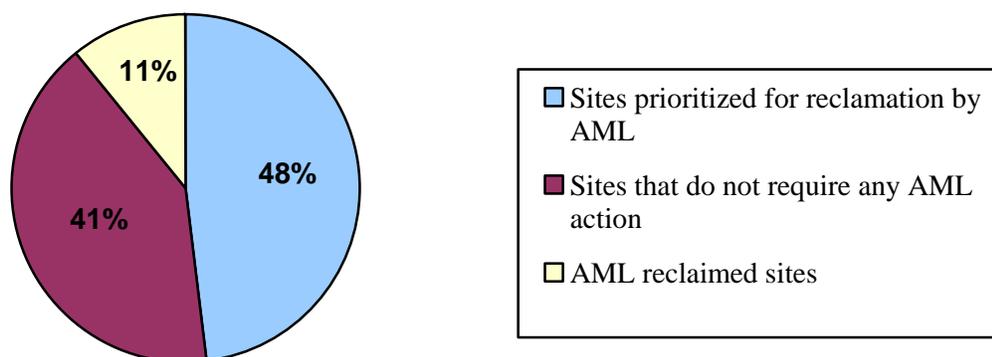
- ▶ Description of the AML policies and procedures to be followed in conducting an AML program
- ▶ Description of the administrative and management structure of the state's AML program
- ▶ General description of reclamation activities to be conducted
- ▶ General description of conditions prevailing in geographic regions of the state where reclamation is planned, such as:
 - ❖ Economic base,
 - ❖ Aesthetic, historic, cultural, and recreational value and
 - ❖ Endangered and threatened plants, fish, and wildlife.

Montana's Priority Site Inventory

A compilation of abandoned mines sites from the Bureau of Land Management, the United States Forest Service, and the Department of Environmental Quality has identified over 6,000 abandoned hard rock mine sites in Montana; however, not all sites are in need of reclamation. Some sites are simply an open hole in the ground while others are leaching toxic materials into the environment. A priority site inventory was completed on the sites considered most hazardous due to human health and environmental risks. The inventory was created by querying the database of abandoned hard rock mines for sites with certain characteristics, such as land size, location, and mine hazards. The priority site inventory is comprised of 304 hard rock sites; the remaining 5,700 are not deemed to be a high enough risk to the environment or human health to warrant cleanup at this time. This inventory contains sites AML is working to remediate as well as sites that have been referred to federal agencies such as the Bureau of Land Management, and Forest Service. The following figure illustrates the categories comprised in the priority site inventory.

Figure 3

**Abandoned Hard Rock Mines with
Environmental and Human Health Risks**



*Based on an inventory of 304 sites

Source: Compiled by Legislative Audit Division From DEQ Records.

The current priority list of hard rock abandoned mines that AML has identified to remediate contains 146 sites. It is broken down into sub-lists: primary, secondary, and the tertiary. These lists contain 110, 19 and 17 sites respectively. In addition to those sites prioritized for reclamation, 33 hard rock and over 300 coal mines have already been reclaimed.

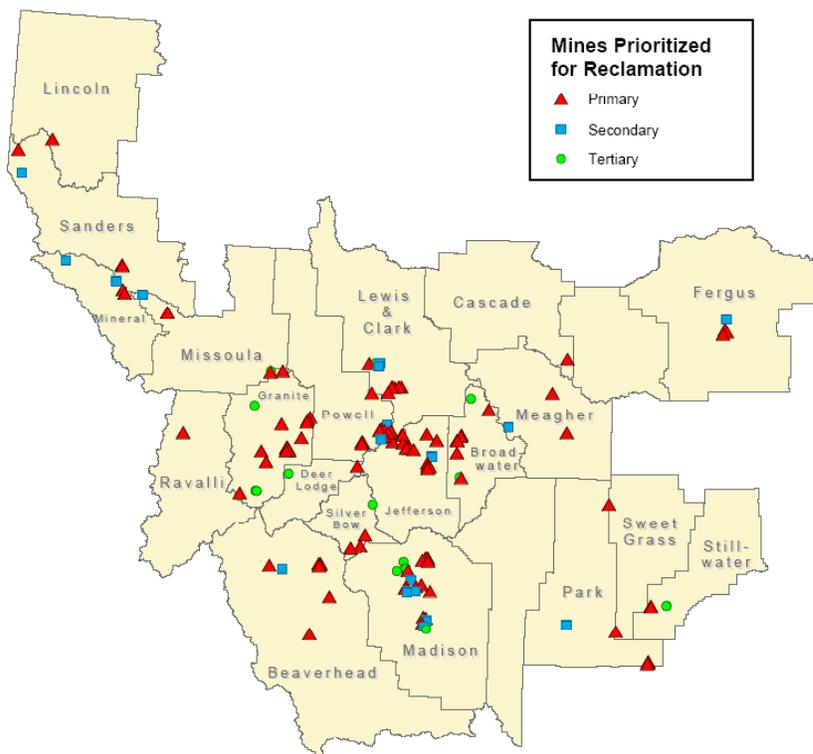
Priority lists are established through scientific assessments of on-site conditions and off-site impacts. The system used to rate each site is called the Abandoned and Inactive Mines Scoring System (AIMSS). DEQ contracts with private consultants to score sites. The scoring system is modeled after the Environmental Protection Agency's Hazard Ranking System. Each site is rated on four pathways of exposure to hazardous materials: groundwater, surface water, air and direct human contact. Within each of the four pathways, three primary factors are evaluated:

- ▶ Likelihood of release, potential and observed
- ▶ Waste characteristics, including concentrations, quantities and toxicity

- ▶ Potential targets of exposure to hazardous materials.

After each site is scored, it is ranked according to the above factors. The sites that are most hazardous and have the most contact with people and animals will be ranked higher than the remaining sites. The highest ranked sites are put on the primary list. This list contains the sites AML actively works to remediate. Sites on the secondary list are termed to have “adverse effects” as compared to “extreme dangers” on the primary list. The secondary list contains sites that have ecological risks associated with them but not physical dangers. The seventeen sites currently on the tertiary list have no known ecological or human health risks but are in need of land restoration. The following map illustrates the location of AML priority sites throughout the state. Due to sites with overlying boundaries not all 146 prioritized sites can be seen on the map.

Figure 4
Abandoned Hard Rock Mine Sites Prioritized for Reclamation
as of February 2005



Source: Compiled by the Legislative Audit Division from DEQ records.

Program Funding

AML programs are funded through federal fees collected from the coal mining industry under SMCRA. Assessments of 35 cents per ton of surface mined coal, 15 cents per ton of coal mined underground, and 10 cents per ton of lignite coal are collected from active mining operations. These fees are deposited in the Abandoned Mine Lands Reclamation Fund maintained by the U.S. Treasury. The U.S. Congress makes a yearly appropriation from the Fund to the Office of Surface Mining (OSM). Eligible states receive an annual distribution from the appropriation as established by OSM.

SMCRA specifies 50 percent of the reclamation fees collected in each state with an approved program are to be allocated to that state.

Annual distributions to states are used to pay the costs of abandoned mine reclamation projects. In recent years, the state share has not been fully appropriated by Congress resulting in only part being dispersed to states for actual reclamation and part going into the AML Trust Fund for future use. The remaining 50 percent (the federal share) is used by OSM to complete emergency projects under its Federal Reclamation Program, fund the Small Operator Assistance Program, fund additional projects directly through state reclamation programs, and pay collection, audit, and administrative costs. The Fund consists of fees, contributions, late payment interest, penalties, administrative charges, and interest earned on investment of the Fund's principal. The most recent data available from OSM shows from January 1978, when the first fees were paid, through December 2004, Fund collections totaled \$7,226,196,212. For the same period, Fund distributions to states and tribes totaled \$5,748,548,370. The following table depicts each participating state's AML distribution for the past four years.

Chapter II - Background

Table 1
State Share Distribution for AML Programs
Fiscal Year 2002-2005

State/Tribe	State Share Distribution FY 2002	State Share Distribution FY 2003	State Share Distribution FY 2004	State Share Distribution FY 2005
Wyoming	\$28,659,989	\$29,305,188	\$30,320,649	\$29,870,288
West Virginia	9,693,083	9,572,163	9,515,372	8,977,678
Kentucky	10,019,837	9,663,661	9,370,452	8,690,962
Pennsylvania	4,734,675	4,522,117	4,368,150	4,038,654
Montana	3,611,665	3,512,316	3,435,934	3,234,974
Indiana	3,112,492	3,076,525	3,061,012	2,909,916
Navajo Nation	2,414,773	2,315,769	2,276,464	2,156,869
Illinois	2,419,092	2,284,815	2,202,250	2,029,335
Virginia	2,123,427	2,033,593	1,998,459	1,882,197
Colorado	1,730,003	1,741,088	1,771,619	1,734,291
Ohio	1,957,896	1,882,157	1,812,823	1,675,751
New Mexico	1,638,418	1,612,445	1,585,359	1,440,891
Texas	1,584,087	1,518,154	1,488,290	1,398,654
Alabama	1,404,248	1,324,615	1,289,499	1,208,413
Utah	1,114,382	1,093,044	1,080,832	1,014,495
North Dakota	921,797	901,550	898,834	853,044
Crow Nation	550,551	545,954	544,738	530,907
Hopi Nation	428,219	414,114	403,997	378,846
Maryland	235,870	244,042	251,201	246,230
Oklahoma	173,193	164,598	157,870	149,238
Alaska	160,477	155,421	147,206	137,600
Louisiana	99,758	98,715	100,955	97,212
Missouri	87,359	75,855	70,917	66,116
Kansas	37,449	33,932	31,966	27,521
Iowa	3,762	3,163	2,728	2,262
Arkansas	248	453	517	646
Total	\$78,916,750	\$78,095,447	\$78,188,093	\$74,752,874

State Funding

Although Montana’s AML program is primarily federally funded, there is some state special revenue used to supplement the annual AML federal distribution. Montana’s AML program competes with state and local entities for state special revenue grants from the Resource Indemnity Trust (RIT). AML has been successful in past years in receiving these grants. The maximum amount for each grant awarded through the RIT is \$300,000. The program uses these grants to fund reclamation work on portions of abandoned mines sites not covered under SMCRA, as well as supplement AML federal funding. The following table depicts RIT grants awarded to the AML program over the last 3 biennia.

Table 2
Resource Indemnity Trust Grants Awarded for Abandoned Mine Reclamation

Biennia	2001	2003	2005
Grant Amount and Project	\$300,000 Gregory Mine	\$300,000 Great Republic Smelter	\$300,000 Frohner Mine
	\$291,191 CMC Pony Mill Site	\$300,000 Washington/ Millsite Mines	\$300,000 Bluebird Mine
		\$300,000 Drumlummon Tailings/Goldsil Mine	\$300,000 Buckeye/Mill Site Mines
Total	\$591,191	\$900,000	\$900,000

Source: Compiled by Legislative Audit Division from House Bill 7 for Applicable Biennia.

AML Personnel

Five full-time equivalent (FTE) positions comprise the Montana AML program within DEQ. Four FTE serve strictly as project officers and one as a program supervisor and project officer.

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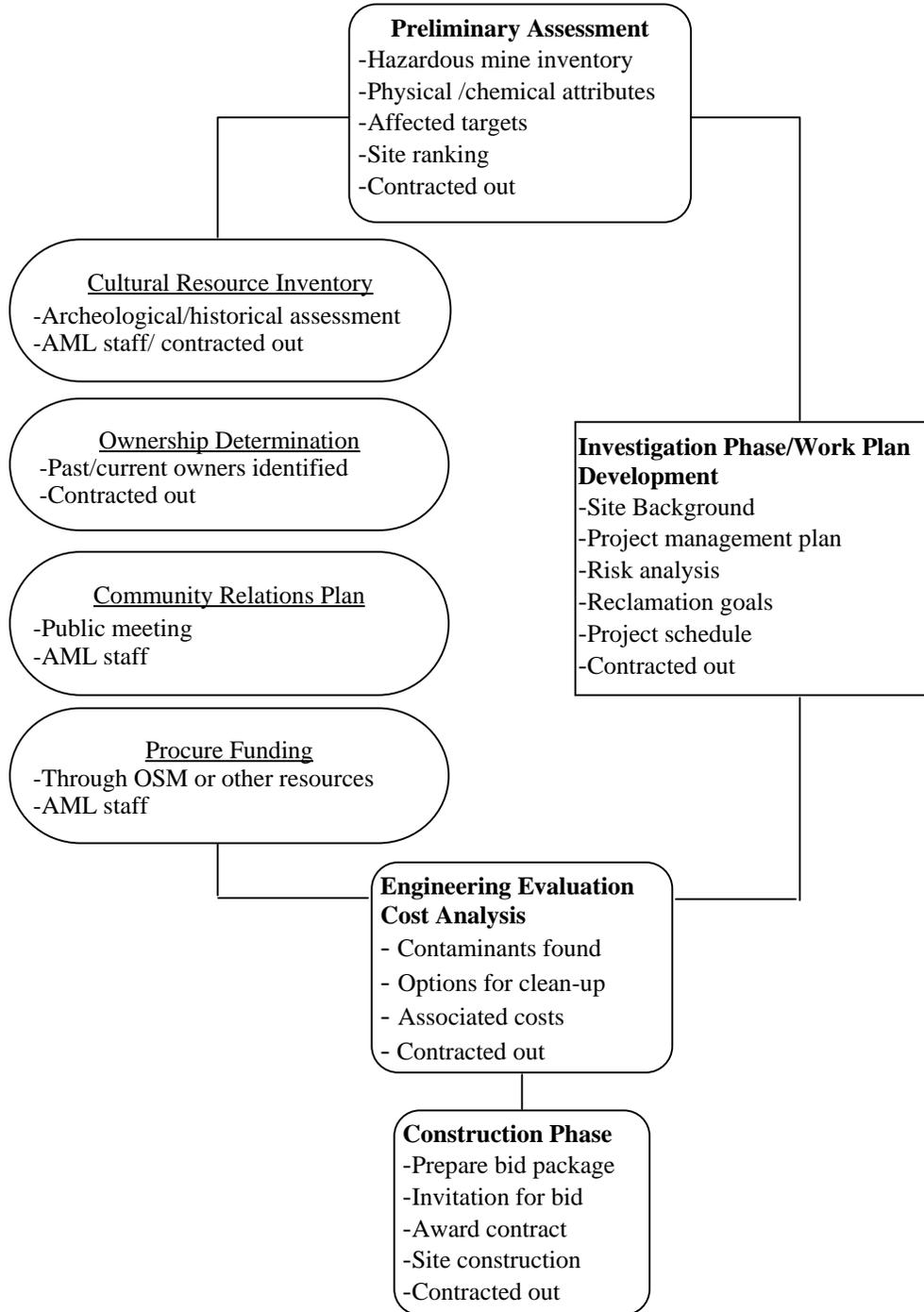
Project officers' backgrounds vary so that individual specialties can be utilized during the reclamation process. Backgrounds include environmental health, archeology, and hydrology. For each project, project officers oversee and/or conduct all phases of the planning, engineering and reclamation design work of the site.

Reclamation Process

The process of mine reclamation from start to finish can be lengthy due to the various steps involved and the complexities at each site.

Following is a flowchart and brief annotations depicting each phase of the reclamation process.

Figure 5
Abandoned Mine Reclamation Process



Source: Compiled by Legislative Audit Division from DEQ records.

Chapter II - Background

Reclamation Phases

The Preliminary Assessment Phase

The first phase occurs when the mine site is initially located. During this phase an inventory of the site's physical and chemical attributes is documented. An Abandoned and Inactive Mine Scoring System (AIMSS) score is completed on each site after inventory. The AIMSS score determines whether the site is a priority and if so, places it on the appropriate priority list. Work completed during the Preliminary Assessment phase is contracted out.

The Investigation/Plan Development Phase

This phase occurs concurrently with the Cultural Resource Inventory, Ownership Determination, Community Relations and Funding Procurement. The Investigation and Plan Development phase assesses the risks to people and the environment, establishes cleanup goals and a work plan, along with the project designs for reclamation. This work is contracted out to private engineering consultants and has an average cost per project of \$81,000.

Cultural Resource Inventory, Community Relations Plan, and Procure Funding Phase

While the Investigation Phase is in process, AML staff work to complete the Cultural Resource Inventory, Community Relations Plan, and procure project funding. The AML archeologist on staff performs a majority of the work needed to complete the Cultural Resource Inventory. This inventory assesses the historical and archeological characteristics of the site. AML staff develop a Community Relations Plan for interested community members. The plan consists of a presentation, meeting, and a question and answer period. AML staff also work to procure funding for the project during this time. Staff members prepare documents to receive OSM funds while also seeking funds from other sources.

Ownership Determination Phase

The work involved in this step occurs alongside the Investigation Phase as well, and is usually contracted out. The Ownership Determination phase identifies current and past ownership of the land. Frequently, current landowners are not the individuals who

mined or left the land inadequately restored. Researchers verify ownership and obtain deed documents. A history is compiled of past owners and the land's uses. This information must be compiled so as to determine if there is a viable responsible party before expending SMCRA funds. This phase is contracted out with an average cost of \$11,000 per project.

Engineering Evaluation Cost Analysis Phase

This phase is a compilation of all work completed to this point along with the associated costs. It is documented in a report similar to an environmental assessment report. Work required to develop and write the Engineers Evaluation Cost Analysis is contracted out. Average cost for the report is \$37,000.

Construction Phase

The final phase is construction, in which the actual reclamation work takes place. AML staff develop a bid package and the project is competitively bid. The construction phase must be timed accordingly to work around Montana weather. A contracted engineering inspector oversees construction work to assure the proper engineering design is followed. AML staff oversee both the contractor and the engineering inspector. A typical contracted cost for this phase of work is \$2,000,000.

The time frame for complete reclamation varies with the individual characteristics of each site. Factors, which affect the timeliness of site reclamation, may include:

- ▶ Available funds
- ▶ Short construction season
- ▶ An available repository site to place hazardous materials
- ▶ Agreements with other governmental agencies

Chapter II - Background

Current Projects

A project officer typically oversees an average of 5-10 projects concurrently. Of these sites, 1-2 go to the final phase of construction a year with an average timeline of 2-3 years per project. Currently, 36 of the 110 prioritized sites are reported to be in a given phase of the reclamation process. Five sites are in the ownership and responsibility determination phase. Twenty-seven projects are in the Investigation/Work Plan Phase. Construction, the last phase in the process, will begin on 11 sites this year (2005). It is important to note projects may be in more than one phase simultaneously. The table below indicates projects, type, and the counties where they are located.

Table 3

Abandoned Mine Sites to Begin Reclamation in 2005

<u>Mine Site</u>	<u>Type</u>	<u>County</u>
Red Bluff Fire #1	Coal	Yellowstone County
Red Bluff Fire # 2		
Jefferies #1	Coal	Musselshell County
Musselshell Ranch		
Bluebird	Hard Rock	Jefferson County
Washington		
Belle Lode		
Big Chief		
Argentine		
Ontario	Hard Rock	Powell County
Buckeye	Hard Rock	Madison County

Source: Compiled by Legislative Audit Division from DEQ Records.

Chapter III – Potential Program Expiration

Pending Program Status

The Surface Mine Control and Reclamation Act (SMCRA) was originally set to expire September 30, 2004. Amendments to the federal omnibus spending bill and the Emergency Supplemental Appropriations Act extended the expiration date of fee collections and disbursements to September 30, 2005. Bills have been written to address the expiration of Abandoned Mine Lands (AML) programs, but to date no legislation has become law. One proposed bill titled “Abandoned Mine Lands Reclamation Reform Act of 2005” extends the expiration date until 2020 and gives certified states an annual portion of their individual state trust rather than an annual distribution from OSM.

Available Funding if Program Ceases

In the event federal AML funding ceases to exist, Montana has set aside funds to be utilized by AML. Montana created three set-aside accounts in 1995 in which federal distribution money is placed. The purpose of these accounts is to fund maintenance on previously reclaimed projects after expiration of the AML program. Maintenance is part of the reclamation process. For up to three years after a site is reclaimed, AML staff return to the site to preserve work previously completed. Currently, Montana has a total of \$7.1 million in these accounts. One account is an all-purpose account that may be used for any type of reclamation work. Its balance is \$5.5 million. The other two are earmarked for special types of reclamation. One is strictly for coal reclamation and the other for acid mine drainage abatement. There is \$1.5 million and \$175,000 respectively in these accounts. This funding can be used as needed, contingent on legislative appropriation.

Additionally, upon inception of SMCRA and the AML program, Congress established a trust fund for each state participating in the AML program. Congress does not fully appropriate the total amount of fees collected each year. The unappropriated portion goes into the AML Trust Fund. Over time Congress appropriated less and less of the fees collected resulting in smaller state grants and growth of the AML Trust Fund. For example, in fiscal year 2004, the federal government collected almost \$15 million in Montana coal fees.

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\$3.2 million was distributed to Montana for reclamation work and \$4.3 million will go into the Unappropriated State Share Trust Fund. The remaining \$7.5 million is the federal share. Montana's portion of the trust is approximately \$48 million. State trusts are held by the U.S. treasury to be used at a later, unspecified date. Federal legislation did not set a time for the Unappropriated State Share to be utilized by states. Currently, the total unappropriated balance of the fund for all states is \$1.5 billion. Interest from the fund is transferred to the Combined Benefit Fund to defray health care costs of miners for whom no operating coal company is responsible for health care costs.

What Does This Mean For Montana?

The AML program has prioritized 146 abandoned mine sites in need of reclamation with 36 sites presently working toward completion. If SMCRA is not reauthorized or legislation is not introduced to fund AML programs, the economic and environmental benefits that stem from the program and needed reclamation on the priority sites will likely not occur.

In the event federal funding ceases, Montana's set aside accounts will be used to finish cleaning up any sites in progress and then be reserved for maintenance of sites previously reclaimed. Initiating new reclamation projects would not be possible unless the program was funded through other resources such as state special revenue funds (RIT grants). If future federal legislation eliminates Montana's annual distribution due to state certification, but appropriates an annual percentage of Montana's state trust, the program could continue to cleanup hard rock sites for approximately 10-20 years depending on site reclamation costs.

Summary

Due to the uncertainty of the funding for the AML program, we chose to conduct an audit survey. Our initial objectives were to determine whether performance audit work was warranted and to obtain data on the AML program to provide information to the legislature. In addition, we examined the risk of not conducting a comprehensive evaluation of the AML program.

Chapter III – Potential Program Expiration

Conclusion

A performance audit of the Montana AML program is not cost effective due to uncertainty of federal funding.

Contingent Audit Areas

The purpose of a performance audit survey is to ensure Legislative Audit Division (LAD) resources are used effectively. If program funding ceases the AML program will begin winding down. Program functions will not stop completely, but the program's focus will change. In addition to the set-aside funds, AML's annual distribution monies can be carried over for up to three consecutive years. The Montana AML program received a final distribution for \$3.2 million on July 1, 2005. If the program is not reauthorized, the AML program has three years to use the \$3.2 million. A performance audit with recommendations addressing program improvement or enhancement would not be a priority for an agency with a program looking to cease current operations in a relatively short period. However, if Congress continues AML funding due to reauthorization of SMCRA or new legislation, there are programmatic areas that could potentially benefit from audit work. A performance audit of the AML program would look at the following areas:

- ▶ **Contracting** – 90 percent of AML funds are spent on contractors. Most of the reclamation site work from initial hazardous waste inventories through the actual construction phase for reclamation is contracted out. Audit work would examine how the program bids, awards and monitors contracts. Work would also look at the change order process by examining past contract change orders as well as the program's response to contract claims.
- ▶ **Process Monitoring** – The AML program employs five FTE as program officers. The role of program officers is wide ranging. They write task orders for contractors, conduct communications with federal, state and county agencies, as well as, manage the reclamation process from beginning to end. Audit work in this area would concentrate on the responsibilities of a project officer, the timeliness of the various reclamation phases and the effectiveness of the project officers' efforts. Review of this area could be determined through interviews with personnel as well

Chapter III – Potential Program Expiration

as mine site visits to observe what actually occurs at identified reclamation sites.

- ▶ **Liability** – State AML programs are protected from liability issues under SMCRA unless found to be grossly negligent. Audit work would examine the program’s system to ensure reclamation standards are met and to avoid potential liabilities. Review would also consider any unforeseen remediation problems that may have previously occurred